

Kennecott
Utah Copper
P.O. Box 525
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(801) 569-6506

Frederick D. Fox
Director, Environmental Affairs

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JUN 08 1992

**DIVISION OF
OIL GAS & MINING**

Kennecott

June 4, 1992

Mr. Lowell Braxton
Utah Department of Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple
III Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Subject: Kennecott Utah Copper (KUC), Bingham Canyon Water
Management Overall Plan, Bingham Canyon Mine, M/035/002

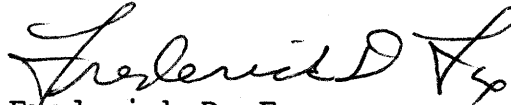
Dear Mr. Braxton:

We appreciated the opportunity to take you and your staff on a tour of our current Bingham Canyon Mine Water Management Projects. As discussed during the tour, enclosed is the May 27, 1992, correspondence, revised to correct minor typographical errors. Please remove Exhibit 1, Drawing Number 451-T-481, Bingham Canyon Water Management Overall Plan, Disturbed Areas, Stockpile Areas, and Borrow Areas, from the original correspondence and insert it in the same location in the revised correspondence. Please discard the original text and tables.

We hope that the tour and this information will assist in keeping the Division of Oil, Gas, and Mining (DOGM) abreast of the activities being conducted in the respective project areas.

Please contact me at 569-6555, if you would like to discuss these projects in further detail.

Sincerely,



Frederick D. Fox
Director, Environmental Affairs

FDF:DD:dbw

Attachments

0016

Kennecott
Utah Copper
P.O. Box 525
Bingham Canyon, Utah 84006-0525
(801) 569-6506

Frederick D. Fox
Director, Environmental Affairs

Kennecott

May 29, 1992

Mr. Lowell Braxton
Utah Department of Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple
III Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Subject: Kennecott Utah Copper (KUC) Bingham Canyon Water
Management Overall Plan, Bingham Canyon Mine,
M/035/002.

Dear Mr. Braxton:

Enclosed is Exhibit 1, Dwg. No. 451-T-481, Bingham Canyon Water Management Overall Plan, Disturbed Areas, Stockpile Areas, and Borrow Areas. Depicted on Exhibit 1 are current in-progress and planned projects located east of the Bingham Canyon Mine and South of the Town of Copperton. Kennecott Utah Copper (KUC) is providing this information in an effort to keep the Division of Oil, Gas, and Mining (DOGM) informed of activities in these areas. Previous correspondence sent to your office provided information related to removal actions for the Bluewater I Repository, the Butterfield Waste Rock Removal, and the Large Bingham Reservoir Sludge Removal. As you know, these removal actions are being conducted by KUC under the supervision of and subject to Administrative Orders on Consent with the US Environmental Protection Agency (USEPA).

Mr. Lowell Braxton
May 29, 1992
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A brief description is included below for current as well as future projects comprising the Water Management Plan work area. The individual projects depicted on Exhibit 1 and listed in Table G-1, include both USEPA removal actions and projects designed to improve existing water management facilities.

Project Area Locations and Estimated Disturbance Acreage.

Project number designations used below correspond to project numbers used on Exhibit 1.

1. Delta Area Tailings Removal/Bluewater 1 Repository

This project will disturb an estimated 81 acres during four years of planned construction and operation. New disturbance projected for 1992 is estimated to be approximately 53 acres.

2. Large and Small Bingham Reservoir Projects

These projects will disturb an estimated 346 acres during four years of planned construction and there after continuous operations. New disturbance projected for 1992 is estimated to be approximately 120 acres.

3. Butterfield Waste Rock Removal/Castro Repository

This project will disturb an estimated 35 acres during the two years of planned construction and operation. New disturbance projected for 1992 is expected to be approximately 15 acres.

4. Sludge Storage Areas

Included in the Sludge Storage Areas are the Bluewater II Repository and the 5816 and 5960 Waste Rock Sludge Repositories. Construction activity associated with these projects will affect an estimated 400 acres of existing waste rock disposal area. Approximately 70 acres of new

disturbance is expected during 3 years of construction and operation. The acreage affected by construction together with new disturbance projected for 1992 is estimated to be approximately 180 acres.

5. Eastside Collection System

This project will disturb an estimated 491 acres during 3 years of construction and operation. New disturbance projected for 1992 is estimated to be approximately 180 acres.

6. Lark Waste Rock/Crapo Repository

This project will disturb an estimated 73 acres during 2 years of construction and operation. New disturbance projected for 1992 is estimated to be approximately 35 acres.

RECLAMATION

General reclamation of the disturbance resulting from the construction activity in the various project areas will consist of the following:

o Reclamation

The majority of activity will involve reseeding and reclamation in accordance with the plan. The objective is to establish vegetation as soon as possible on those areas disturbed by project construction. Vegetative stabilization is the most effective means of controlling potential erosion and fugitive dust.

For areas slated to be revegetated, the agronomic procedures used will include tilling and drill seeding, broadcast seeding by hand, and/or hydroseeding. A 16-16-8 fertilizer will be applied at a rate of 250 pounds per acre. Depending

upon terrain, fertilizer will be applied by a spreader pulled by a tractor, by hand broadcast, or as a component of the hydroseeding application. Organic matter may be applied as a component of a test program on the 5816 waste rock disposal area. The results of those tests will indicate if organic matter is needed. Organic matter and mulch will not be applied except as an integral component of the hydroseeding, if utilized. Depth of drilling will be targeted at 1/2 inch with a maximum no greater than 1 1/2 inches. Broadcast seeding by hand or hydroseeding will be utilized on steeper slopes. The seed mix shown on Table G-2, previously approved by the Division of Oil, Gas, and Mining (DOGM) for the UCD Modernization and 4th Line expansion projects, will be used for permanent seeding.

o Dust Control

Dust control will include both vegetative stabilization and utilization of chemicals and/or water. Stabilization of areas slated for future revegetation will assist in adding organic matter to the soil. Economic factors, access, and the relative time period involved will dictate the type of method employed. Vegetative stabilization may involve drill seeding or hydro-seeding with annual cover crops such as cereal rye, wheat, or a wheat hybrid. Maintenance dust control generally involves the application of chemical amendments ($MgCl_2$ for roads) or a polymer based tacifier with mulch to control other areas that may generate fugitive dust. These areas will normally consist of newly disturbed ground, haulroads, access/service roads, stockpiles, and other areas that are either used repeatedly or will be periodically redisturbed.

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Temporary reclamation will utilize hydroseeding with annual cover crops in areas that are inaccessible to drill seeding equipment. Standard equipment will be used to till and drill seed accessible areas using a tractor pulling a suitable tilling/seeding implement. Broadcast seeding by hand or hydroseeding will be utilized on steeper slopes. The seed mixture to be used for temporary revegetation will consist of an annual cover crop such as cereal rye or wheat. In some cases, a 3 to 6 species mix, derived from the permanent seed mix (Table G-2), may be employed to assist in stabilization and soil building.

Please review the information presented above concerning the overall Water Management and Environmental Project Activity Plan. KUC would be interested in your observations, suggestions, and comments with regard to the various projects.

Please contact me at 569-6555, if you would like to discuss this project in further detail.

Sincerely,



Frederick D. Fox
Director, Environmental Affairs

FDF:DD:dbw

cc: D. Wayne Hedberg, DOGM

TABLE G-2
PERMANENT RECLAMATION SEED MIX

<u>Species</u>	Rate* (lbs./acre)
<u>Grasses</u>	
<u>Agropyron dasystachyum</u> (thickspike wheatgrass)	2.0
<u>Agropyron intermedium</u> (intermediate wheatgrass)	2.0
<u>Agropyron smithii</u> (western wheatgrass)	2.0
<u>Agropyron trachycaulum</u> (slender wheatgrass)	1.5
<u>Agropyron trichophorum</u> (pubescent wheatgrass)	2.0
<u>Oryzopsis hymenoides</u> (indian ricegrass)	1.0
<u>Forbs</u>	
<u>Achillea millefolium</u> (yarrow)	.1
<u>Aster Chilensis</u> (Pacific aster)	.1
<u>Hedysarum boreale utahensis</u> (Utah Sweetvetch)	1.0
<u>Linum lewisii</u> (Lewis flax)	.5
<u>Medicago sativa</u> ('Ranger' alfalfa)	1.0
<u>Melilotus officianalis</u> (yellow sweetclover)	1.0
<u>Penstemon strictus</u> (Rocky Mountain penstemon)	.2
<u>Shrubs</u>	
<u>Purshia tridentata</u> (antelope bitterbrush)	2.0
<u>Cowania mexicana stansburiana</u> (Stansbury cliffrose)	.1
<u>Artemisia tridentata</u> (big Sagebrush)	2.0
<u>Chrysothamnus nauseosus</u> (rubber rabbitbrush)	1.5
<hr/>	
<u>Total Seed</u>	20.0

*Rate is in terms of Pure Live Seed (PLS) for drill seeding only.
The rate for broadcast seeding is double the drill rate.